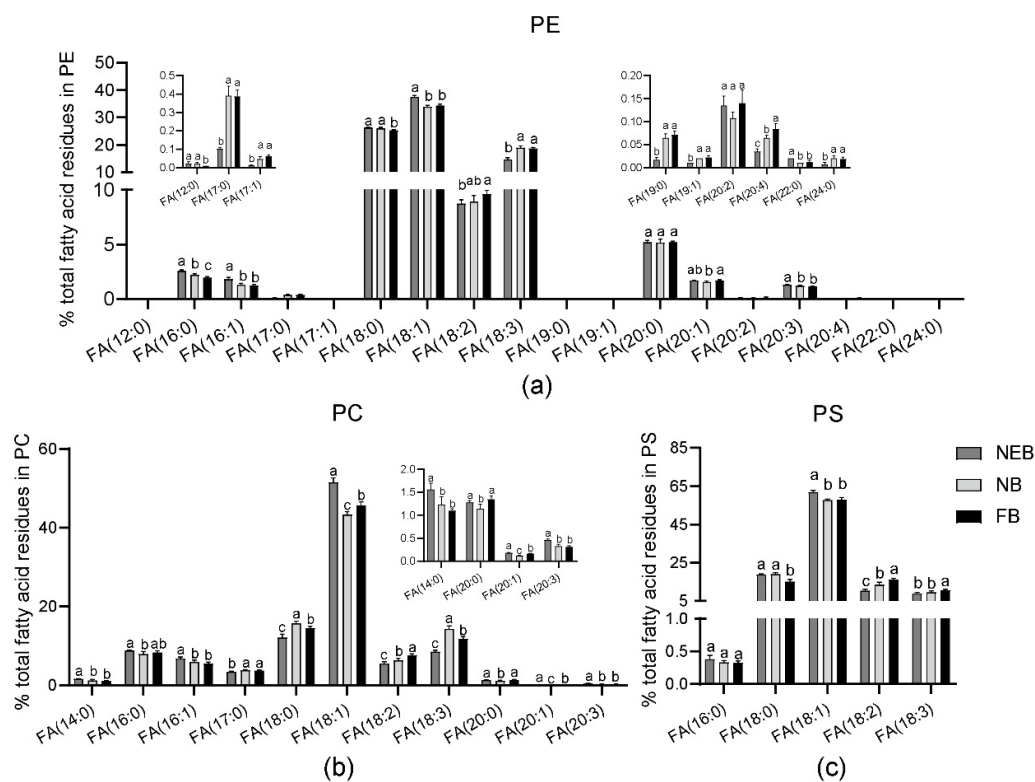
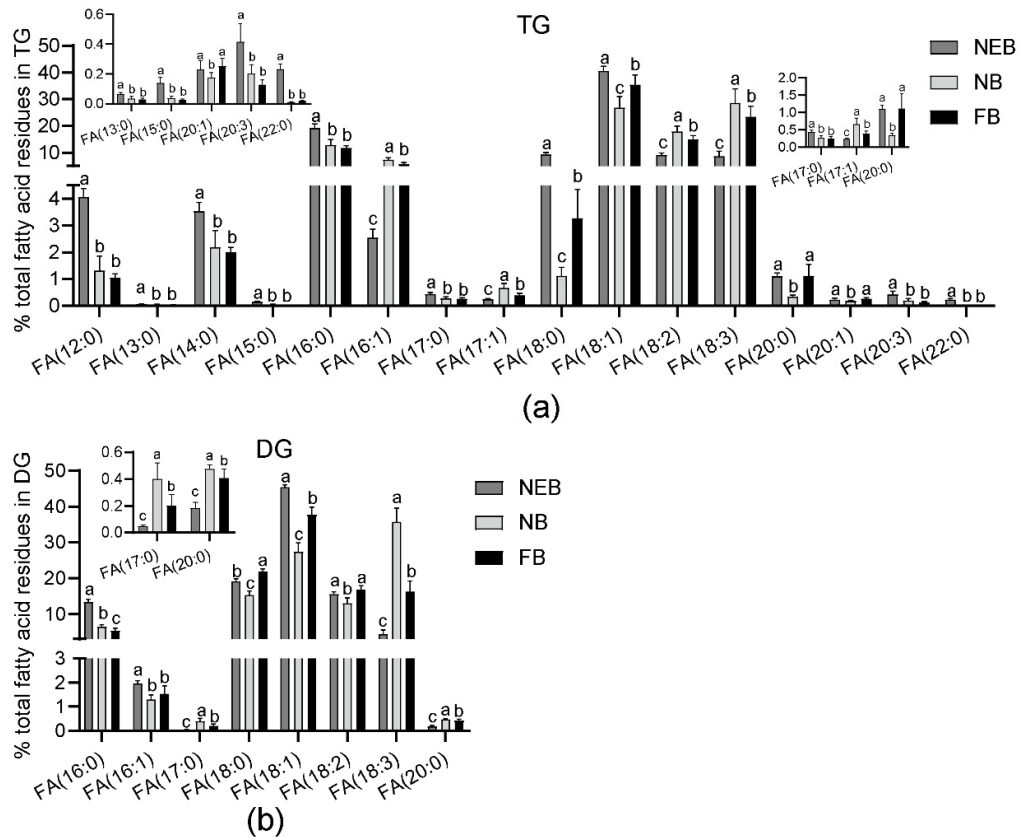


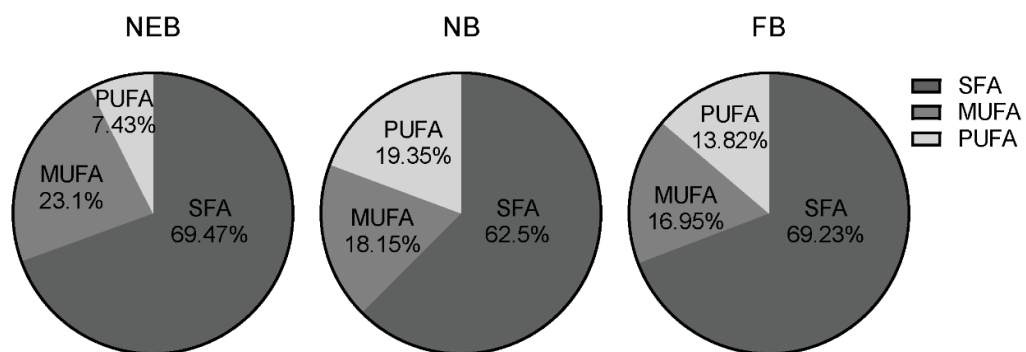
**Figure S1. Representative total ion current chromatograms of brain sample from NEB, NB and FB under both positive and negative mode. (a) NEB\_4 in positive mode. (b) NEB\_4 in negative mode. (c) NB\_3 in positive mode. (d) NB\_3 in negative mode. (e) FB\_3 in positive mode. (f) FB\_3 in negative mode.**



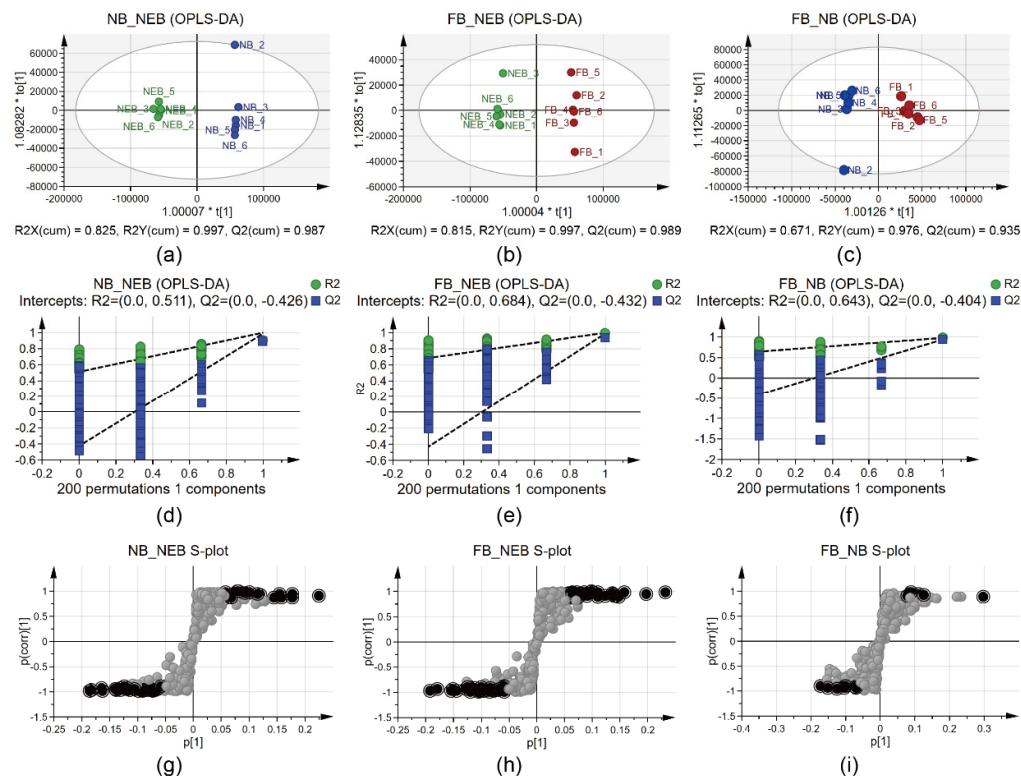
**Figure S2. The distribution of fatty acid residues of PE, PC and PS in the brains of NEB, NB and FB. (a) The relative abundance of fatty acid residues in PE. (b) The relative abundance of fatty acid residues in PC. (c) The relative abundance of fatty acid residues in PS. Error bars represent standard deviations (n = 6). Statistical test was performed by one-way ANOVA ( $P < 0.05$ ).**



**Figure S3. The distribution of fatty acid residues of TG and DG in the brains of NEB, NB and FB. (a) The relative abundance of fatty acid residues in TG. (b) The relative abundance of fatty acid residues in DG. Error bars represent standard deviations (n = 6). Statistical test was performed by one-way ANOVA ( $P < 0.05$ ).**



**Figure S4. The proportion of free SFA, MUFA and PUFA to the total free FA in the brains of NEB, NB and FB.**



**Figure S5. OPLS-DA models of lipids in the brains of worker bees with different labors.** (a-c) The score plots of the comparison of NB and NEb (NB\_NEb) (a), FB\_NEb (b), and FB\_NB (c). (d-f) The permutation test results of the comparison of NB\_NEb (d), FB\_NEb (e), and FB\_NB (f). (g-i) S-plot of the comparison of NB\_NEb (g), FB\_NEb (h), and FB\_NB (i). The lipid species with  $VIP > 1$  and  $P\text{-adj} < 0.05$  were highlight in black.